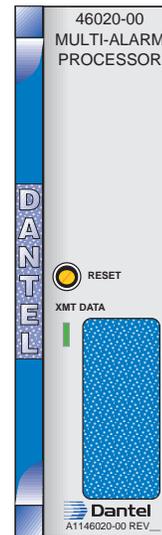


# 46800-58

## MULTIPLE ALARM PROCESSOR FIRMWARE

### (FOR DIAL-UP SYSTEMS)



#### Table of Contents

Ordering Information .....	2
General Description .....	2
Application Information .....	4
Switch Settings .....	9
Quick-Start Procedure .....	11
Printer Syntax .....	13
Glossary .....	36
Warranty .....	38

#### About this Practice:

This practice has been reissued to:

- Add a note on using the dial-up system over a PBX system.

**Reissued Practices:** Updated and new content can be identified by a banner in the right margin.

**Issue date: March 2000**

UPDATED

#### CAUTION

- Install or remove modules from the shelf only when the power is off. If you install a module in the shelf with the power on, the internal circuitry may suffer damage and the product warranty will be void.
- Remove and install circuit boards only in a static-safe environment (use antistatic wrist straps, smocks, footwear, etc.).
- Keep circuit boards in their antistatic bags when they are not in use.
- Do not ship or store circuit boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.
- For more complete information on electrostatic discharge safety precautions, refer to Bellcore™ Technical Reference # TR-NWT-000870.

# ORDERING INFORMATION

**NOTE:** This section lists the different options available for this product. To order any of the available options, contact Dantel Inside Sales through our toll-free number, **1-800-432-6835**.

OPTION NUMBER	FEATURES
B17-46800-58	Dial-Up MAP Firmware

# GENERAL DESCRIPTION

The 46800-58 MAP Firmware is a subassembly which programs a 46020 Multiple Alarm Processor to interrogate and control, through a modem interface on the Data Port, remote site DCM responders (MATs and CPMs).

46800-58 MAP Application features include:

- ◆ Call-out and connection to a Modem/MAT/CPM remote site for configuration, or database update, of the remote modem.
- ◆ Validation of master/remote phone line connections at user-defined polling intervals.
- ◆ Immediate remote-site call-out and reporting to the master site upon a change of state of alarms.
- ◆ Telephone address book style configuration database and management.
- ◆ Interface, through the Master Port, to an operations center that reports alarm data and issues control point commands.

Additional 46800-58 MAP Firmware features include:

- ◆ Response to DCP or DCP/F protocols on the master port at rates of 300, 1200, 2400 or 9600 baud.
- ◆ Response to DCP/F or Printer syntax on the printer port at rates of 300, 1200, 2400 or 9600 baud.
- ◆ Can be used to interface the MAP with a 46033 E-System Adapter.
- ◆ 1200 baud, DCM only, data port.
- ◆ The data port can poll up to 128 remote Multiple Alarm Transmitters (MATs) and 128 remote Control Point Modules (CPMs).
- ◆ Printer syntax configures the database or the remote modem through the printer port.

**NOTE:**

The 46800-58 Dial-up Firmware is "Y2K" compliant, supporting a range of dates from 1998 to 2097

# GENERAL DESCRIPTION

---

## DIP Switches

There are four eight-lever DIP switches on the MAP. They are labeled S1, S2, S3 and S4 and are located at the top of the MAP circuit board.

- ◆ S1 and S2 determine port protocols and baud rates
- ◆ S3 sets ID addressing for the Master Port
- ◆ S4 sets ID addressing for the Printer Port

---

## Applications

The firmware configures the MAP for a variety of applications including Printer syntax and reporting alarm status data to external equipment.

The Printer syntax:

- ◆ Interrogates system status
- ◆ Operates control points
- ◆ Sets options
- ◆ Programs the MAP for operating a 44210 460 Modem

Using DCP protocol, alarm status data is reported to external equipment including:

- ◆ A personal computer
- ◆ An E2A remote
- ◆ An E-System master. DCP protocol interfaces to an E-System master through a 46033 E-System Adapter

The MAP microprocessor establishes a system size and arrangement that sets aside blocks of memory for a predetermined number of discrete points. If a certain block is not entirely filled, the system counts the block as part of the system but treats the block as non-reported data. This arrangement allows space to be reserved for future system additions without re-addressing the existing equipment.

# APPLICATION INFORMATION

This chapter discusses MAP database setup, port functions, protocols, interfaces and data limitations. This chapter also includes a basic configuration example.

The basic function of the application is to interrogate MATs and CPMs linked to the Data Port of the MAP by modem-to-modem connections.

The application is capable of performing the following functions:

- ◆ Call out and connect to a particular modem-MAT/CPM remote station and be able to configure the remote modem through the master firmware.
- ◆ Validate the master/remote phone line connection on a regular and repeating interval, or by a user defined one-time call-up and poll of the selected remote.
- ◆ Immediate remote call-out and report to the master site upon a change of state of alarms.
- ◆ Direct interrogation and change of the remote modem configuration via terminal access through the -58 firmware.

The -58 firmware uses a telephone address book style for configuring and managing the discrete point database of MATs & CPMs.

Each remote modem-MAT/CPM site is labeled and organized in the firmware by an ENTRY NUMBER. Each ENTRY NUMBER contains the following information:

ENTRY # X

- ◆ REMOTE SITE PHONE NUMBER
- ◆ MASTER SITE PHONE NUMBER
- ◆ MASTER SITE BACKUP PHONE NUMBER ( OPTIONAL )
- ◆ REMOTE SITE MAT/CPM POLLING ADDRESS RANGE

It is important to remember that the remote site phone number is attached to a unique set of MAT/CPM addresses. This means that if a remote site 49212 modem is connected to five MATs (for example: MATs addressed 1 through 5), the firmware will associate the phone number connected to this modem with DCM polling addresses 1 through 5.

Each ENTRY must contain a unique remote phone number. You cannot configure, for example, ENTRY 1 with 545-6000 and then try to configure ENTRY 5 with the same remote phone number. The firmware will reject the ENTRY 5 number. However, the Master and Backup sites numbers are repeatable for each ENTRY. A shortcut has been built into the firmware that allows the user to duplicate the Master and Backup numbers by simply typing in **C** when prompted.

## NOTE:

Configuration of the remote consists of downloading the remote modem's ID, MAT/CPM polling address(es), and installing the master sites primary and backup phone numbers. These functions are performed by the MAP. Refer to the Dial-Up Remote Configuration topic in the *Printer Syntax* section.

## NOTE:

PBX applications utilizing the 49212 Dial-Up Subassembly have been successfully tested and deployed.

Dantel's **Customer Support Services Group** is available by phone to assist in the planning, installation, and turn-up of this product.

This free service is available by calling 800.432.6835 and asking for Customer Support Services.

NEW NOTE

# APPLICATION INFORMATION

Each ENTRY into the address book is created by invoking the printer syntax command:

“CPM # PH” or “MAT # PH”,

where # can represent a single address number (example: 5) or a range of addresses (example: 9-15).

Each time this command is typed, the firmware assigns those MAT/CPM addresses to the next available ENTRY number and prompts the user for the:

- ◆ REMOTE SITE PHONE NUMBER,
- ◆ REMOTE SITE NAME,
- ◆ MASTER SITE PHONE NUMBER
- ◆ BACKUP SITE PHONE NUMBER,

and appends it to its database record. The maximum number of ENTRYs allowed is 128.

Once the creation of the database is complete, the next step is to download the configuration for each respective modem/discrete remote site the firmware will be polling. This is accomplished by using the command:

“ENTRY X POLL”,

where X is an integer number such as 1 or 2 or 3, or etc... up to 128.

The firmware will call the remote number. When the remote answers the call, the master site sends a valid DCM message to the remote.

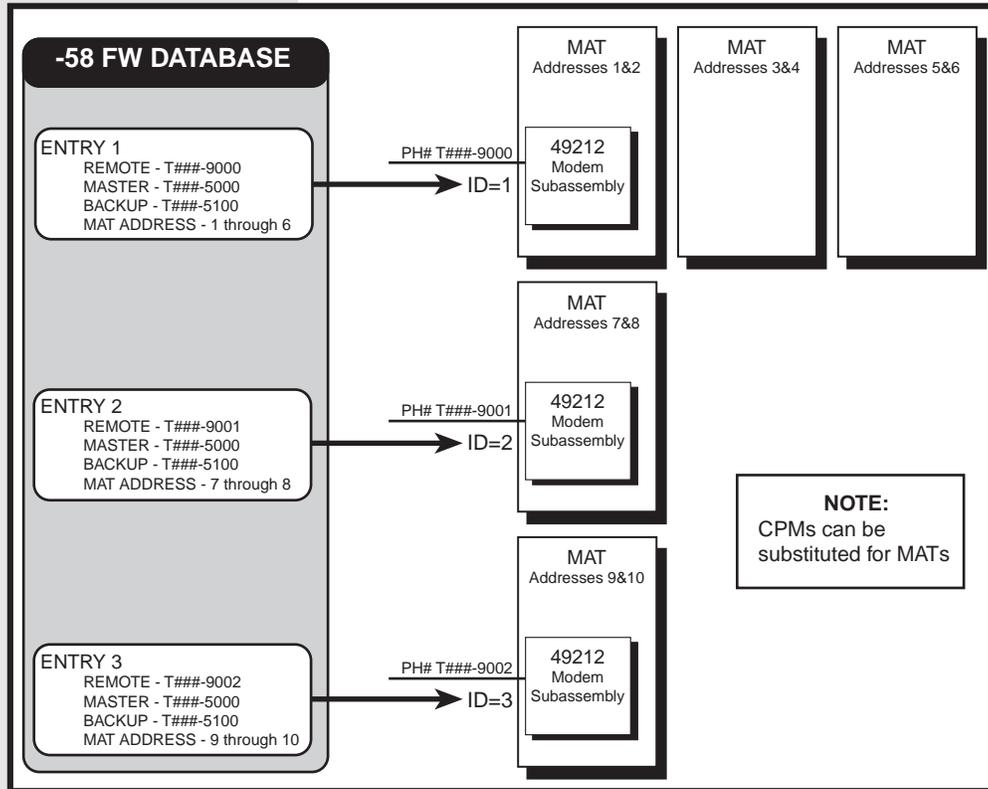
Once proper link-up has been established, the Master site downloads the following information to the remote:

- ◆ MASTER SITE PHONE NUMBER
- ◆ MASTER SITE BACKUP PHONE NUMBER ( OPTIONAL )
- ◆ REMOTE SITE MAT/CPM ADDRESS RANGE
- ◆ ID # ( This number is the -58 ENTRY number )

Figure 1 below illustrates the relationship of -58 firmware configuration database entries to the REMOTE SITE locations. CPMs can be substituted for MATs.

# APPLICATION INFORMATION

FIGURE 1 - 46800-58/REMOTE SITE RELATIONSHIPS



## MAP PORTS, PROTOCOLS AND INTERFACES

Fig. 2 shows MAP ports and protocols.

Fig. 3 shows the MAP's Data port and usage.

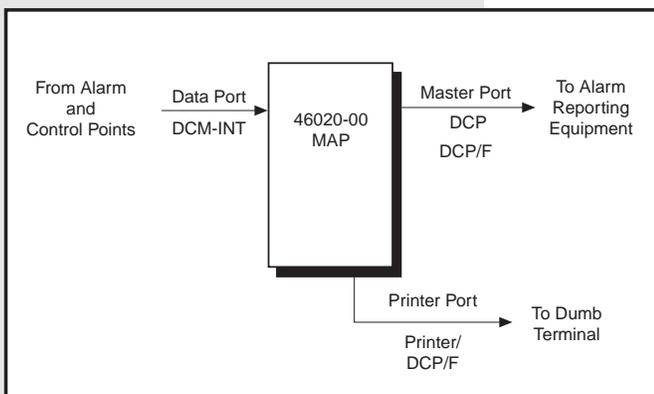
### Master Port

The master port can interface an operations center that reports alarm data and issues control point operation commands. The operations center may be a personal computer or an alarm system master. An example of an alarm system master is an E-System master the MAP communicates with through a 46033 E-System Adapter. The master port can also interface another MAP using DCP protocol to report data to an operations center.

There are two communications protocols available for the master port:

**DCP** — Use this protocol when the MAP interfaces another MAP, a personal computer or an external alarm master (such as an E-System master interfaced through a 46033 E-System Adapter). DCP protocol reports data from discrete points gathered by the MAP data port.

FIG. 2 - MAP PORTS AND PROTOCOLS



# APPLICATION INFORMATION

**DCP/F** — Use this protocol when the external alarm master is a TL1 GPP.

The master port requires a subassembly mounted on the MAP to properly interface to other equipment.

When you use DCP or DCP/F on the master port, and when the MAP interfaces an E-System Adapter, you can use a 49009 or 49029 Current Loop Interface Subassembly with an RS-232 interface. For long distances you can use a 49013 202 Tone Modem Subassembly.

## Printer Port

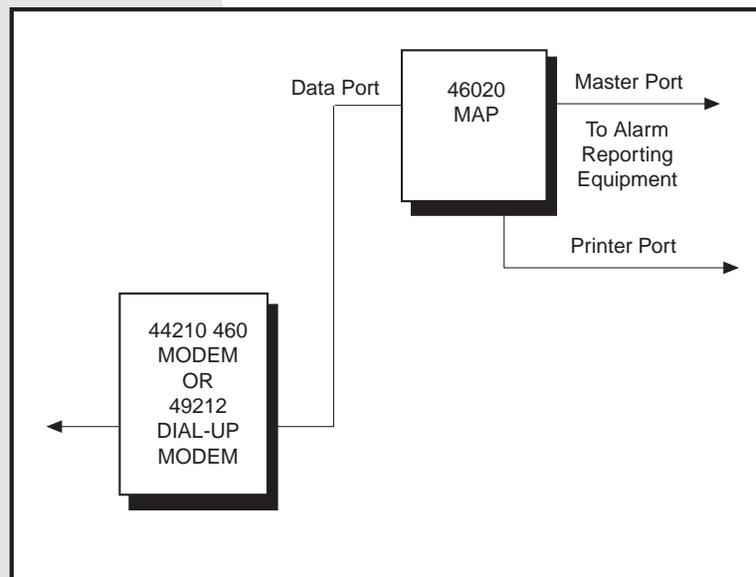
The printer port interfaces a dumb terminal with or without a printer. You can use the printer port along with the master port for alarm reporting and control point operation. The printer port can report alarm data in DCP/F format. You can also use the printer port, using Printer syntax, for programming the MAP to operate a 46210 or 49212 Dial-Up Modem wired to the data port.

There are two communication protocols for the printer port:

- ◆ **Printer** — This protocol establishes printer port coding for interfacing to a dumb terminal or a computer operating as a dumb terminal. Refer to the *Printer Syntax* chapter for protocol commands.
- ◆ **DCP/F** — Use this protocol when the printer port is used to report alarms to a Status Monitor.

The printer port is an RS-232 interface. If you need a different printer port interface, you can add a 46035 Converter Module with the appropriate subassembly between the MAP and the other equipment.

FIG. 3 - 46020 MAP AND 44210/49212 MODEM EXAMPLE APPLICATION



# APPLICATION INFORMATION

## NOTE:

The 49212 Dial-Up Modem sub-assembly, when used on a remote, polls the MATs and CPMs at that remote site at 9600 baud. Verify that all MATs and CPMs are configured for 9600 baud operation. Refer to the Operations Manuals for those devices for switch and strap settings.

## Data Port

The data port interrogates alarm points and operates control points. All control points must connect to the 44210 460 Modem or 49212 Dial-Up Modem. Refer to Fig. 3.

There is only one protocol for the data port:

**DCM Interrogate** — This protocol lets the MAP interrogate discrete points. The MAP interrogates 46009 or 46010 MATs for alarm data and operates control points with 46028 or 46029 CPMs.

MATs and CPMs provide discrete alarms and the MAP communicates directly with MATs and CPMs.

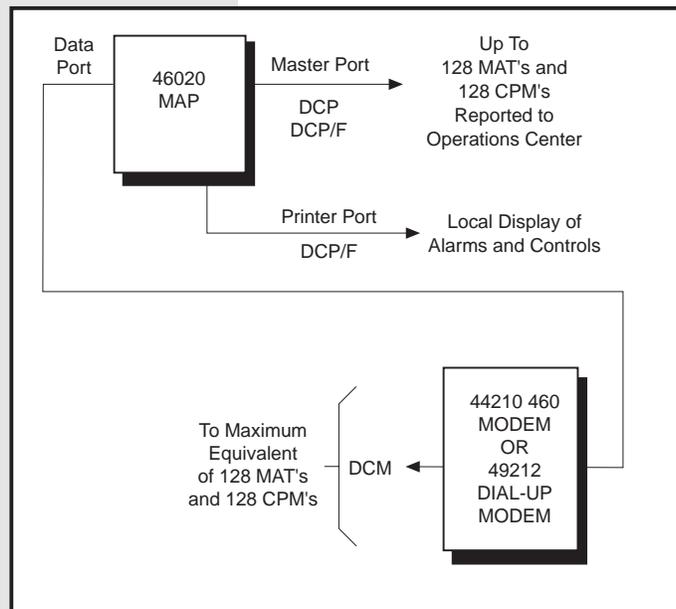
The MAP data port communicates through transistor-transistor logic (TTL) so communications cannot extend beyond the shelf the MAP is installed in. The data port must connect to a 44210 460 Modem or a 49212 Dial-Up Modem for the MAP to communicate beyond the shelf.

## DATA LIMITATIONS

The MAP can process a limited amount of data. A MAP can handle a maximum of 2,048 alarm points and 2,048 control points. When these alarm and control points are discrete points, 2,048 alarm points and 2,048 control points are equivalent to 128 MAT addresses and 128 CPMs. (Each MAT and CPM has 16 points, so 2,048 divided by 16 equals 128.)

With DCP or DCP/F on the master port, you can use the MAP to its full capacity of 128 MATs and 128 CPMs. Refer to Fig. 4.

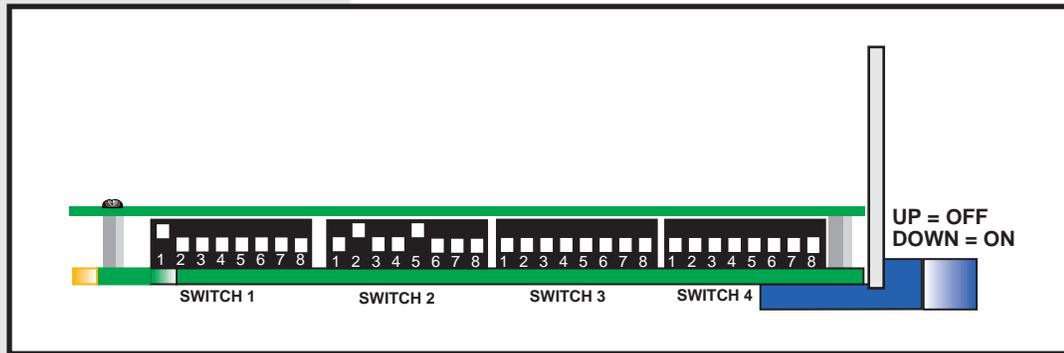
FIG. 4 - DCP AND DCP/F MASTER PORT EXAMPLE APPLICATION



# SWITCH SETTINGS

The illustrations in this section represent the way the switches look when the module is viewed from the top, with the front panel of the MAP on the right side. Refer to Fig. 5.

**FIG. 5 - 46020 MAP VIEWED FROM THE TOP**



## SWITCH S1 - REMOTE PORT BAUD

Switches S1-1 and S1-2 define the baud rate used by a remote device the MAP connects to. Refer to Table A and Fig. 5.

**TABLE A - SWITCH 1**

SWITCH 1	SETTING
1,2	Remote Port Baud (U,D = 1200 baud)
3 thru 8	Not Used. Leave DOWN.

## SWITCH S2 - MASTER/PRINTER PORT BAUD RATES AND PROTOCOL

Refer to Table B and Fig. 5.

**NOTE:**

Switches S2-1 and S2-4 are not used. Leave them DOWN.

Switches S2-2 and S2-3 set the baud rate for the master port.  
 Switches S2-5 and S2-6 set the baud rate for the printer port.  
 Switch S2-7 sets the master port protocol.  
 Switch S2-8 sets the printer port protocol.

**TABLE B - SWITCH S2**

SWITCH 2	SETTING
1	Not Used. Leave DOWN.
2,3	Master Port Baud (DD=300, UD=1200, DU=2400, UU=9600)
4	Not Used. Leave DOWN.
5,6	Printer Port Baud (DD=300, UD=1200, DU=2400, UU=9600)
7	Master Port Protocol (D=DCP, U=DCPF)
8	Printer Port Protocol (D=Printer Syntax, U=DCPF)

# SWITCH SETTINGS

## SWITCHES S3 AND S4 - MASTER PORT AND PRINTER PORT ID

Refer to Table C and Fig. 5. Switch S3 sets the master port ID address from 1 to 255. Switch S4 sets the printer port ID address from 1 to 255.

TABLE C - SWITCHES S3 AND S4

1	27	53	79	105	131	157	183	209	235
2	28	54	80	106	132	158	184	210	236
3	29	55	81	107	133	159	185	211	237
4	30	56	82	108	134	160	186	212	238
5	31	57	83	109	135	161	187	213	239
6	32	58	84	110	136	162	188	214	240
7	33	59	85	111	137	163	189	215	241
8	34	60	86	112	138	164	190	216	242
9	35	61	87	113	139	165	191	217	243
10	36	62	88	114	140	166	192	218	244
11	37	63	89	115	141	167	193	219	245
12	38	64	90	116	142	168	194	220	246
13	39	65	91	117	143	169	195	221	247
14	40	66	92	118	144	170	196	222	248
15	41	67	93	119	145	171	197	223	249
16	42	68	94	120	146	172	198	224	250
17	43	69	95	121	147	173	199	225	251
18	44	70	96	122	148	174	200	226	252
19	45	71	97	123	149	175	201	227	253
20	46	72	98	124	150	176	202	228	254
21	47	73	99	125	151	177	203	229	255
22	48	74	100	126	152	178	204	230	
23	49	75	101	127	153	179	205	231	
24	50	76	102	128	154	180	206	232	
25	51	77	103	129	155	181	207	233	
26	52	78	104	130	156	182	208	234	

# QUICK-START PROCEDURE

This section gives a quick overview of how to configure a Multiple Alarm Processor (MAP) equipped with 46800-58 firmware to poll one or more remote sites. These remote sites are made up of one or more Multiple Alarm Transmitters (MAT's) and/or Control Point Module (CPM's). Refer to the *Application Information* section of the 46800-58 Firmware Manual for more details.

## SWITCHES

Remove the MAP (46020) from the shelf and configure the switches as described in the *Switch Settings* section of this manual. Each switch has 8 segments referred to as "bits". Refer to Fig. 5 for UP/DOWN positions. Verify that the switches are set as follows:

### SWITCH 1:

- ◆ Bit 1 UP
- ◆ Bit 2 DOWN
- ◆ Bits 3-8 are not used. Place them in the DOWN position.

### SWITCH 2

- ◆ Bits 1 and 4 are not used. Place them in the DOWN position.
- ◆ Bits 2 and 3 define the Master Port baud rate, which is used to report the alarm information to another device; for example a display device, Operations Center, or another collection processor.
- ◆ Bits 2 and 6 set the baud rate for the Printer (craft) Port. This is used to configure the MAP by using a terminal or PC.
- ◆ Bit 7 selects the Master Port protocol. The protocol must match the device it's connected to.
- ◆ Bit 8 selects the Printer Port protocol. For terminals or PCs this Bit is DOWN. For connection to Dantel's Status Monitor, this bit is UP.

### SWITCH 3

Selects Master Port Address

### SWITCH 4

Selects Printer Port Address

#### NOTE:

The baud rate of the Master Port must match that of the device polling it.

#### NOTE:

The baud rate of the Printer Port must match that of the terminal.

## TERMINAL HOOK-UP

Connect terminal or PC running terminal program to RS-232 connector on Dial-up Master Shelf. Press ENTER and the ">" symbol will appear. If not, check baud rates of terminal and MAP (Switch 2, Bits 2 and 6). Also check Printer Port protocol (Switch 2, Bit 8).

CONTINUED . . .

# QUICK-START PROCEDURE

## CONFIGURATION

1. Type UNLOCK1.
2. Type RESET ALL.
3. Type UNLOCK 1 again.
4. Enter DATE using format MM-DD-YY. Must use two digits for each.

---

*NOTE:* This firmware is Y2K compliant, accepting a range of dates from 1998 to 2097.

---

### IMPORTANT NOTE:

The 49212 Dial-Up Modem subassembly, when used on a remote, polls the MATs and CPMs at that remote site at 9600 baud. Verify that all MATs and CPMs are configured for 9600 baud operation. Refer to the Operations Manuals for those devices for switch and strap settings.

5. Enter TIME using HH:MM:SS 24 hour format. 12 midnight is 00:00:00, 12pm is 12:00:00, 3pm is 15:00:00, etc.
6. Type TIME ON.
7. Type MAT 1 PH. This command will initiate a series of on-screen questions about the remote MAT, address #1.
  - ◆ Txxx xxxx - This is the phone number of the remote MAT unit addressed #1.
  - ◆ REMOTE SITE NAME - This can be any ASCII text string describing the remote site.
  - ◆ Txxx xxxx - This is the main phone number of the Master site that you want the remote to call in to when an alarm is sensed.
  - ◆ Txxx xxxx - This is the back up phone number if two lines are connected to the Dialup Master Shelf.
8. If you have Control Point Modules (CPM) at the remote, the same procedure is used to define the phone numbers for them. (Refer to Table D for more information.)
9. Type MAT 1 ON - This adds MAT address #1 to the master processor (MAP) polling list.
10. If you have CPMs, type CPM 1 ON, or any corresponding CPM address.
11. Type POLL ON - Tells MAP that you are ready to start polling remotes.
12. Type ENTRY 1 POLL - Commands the MAP to immediately poll, and configure whatever device is defined as Entry 1. In this case it would be remote MAT 1. This will automatically configure the remote device.

Repeat steps 7 through 12 for each remote you want this MAP to poll. For example; if you have 10 remotes, you would type MAT 2 PH <ENTER> and answer the questions regarding this remote. Then MAT 3 PH <ENTER>, MAT 4 PH <ENTER>, and so on, until you've configured the Master MAP with all remote information.

# PRINTER SYNTAX

Here are the commands for MAP printer port operation. This syntax establishes the coding for the printer port to interface to a standard ASCII (VT-100) terminal or a personal computer with terminal emulation software. The printer syntax works with DCM discrete points (MATs and CPMs). The printer syntax allows you to communicate with the alarm and control system to find out the status of alarms and to operate control points.

## GETTING STARTED

### NOTE:

If the printer port protocol on the MAP (switch S2-8) is set for DCPF, typing !!! will switch the protocol to Printer Syntax to allow printer commands to be entered. Type "DCPF MODE" to return the printer port to DCPF protocol.

The terminal must be set for no parity, 1 stop bit, 8 bit word length, and the same data rate (baud) as set on Switch S2 (See *Switch Settings*).

- ◆ Make these settings before connecting the terminal to the MAP.
- ◆ If the system is operating properly, a prompt > appears on the screen when power is applied to the MAP. The MAP is ready to accept command inputs.
- ◆ If the terminal and MAP do not communicate, remove power from the MAP. Then check the settings at the terminal and also at the MAP.

Type UNLOCK1 or UNLOCK2 and press Enter. See the Unlock command in the *Syntax Commands* section for instructions on using this command.

This command unlocks the MAP so you can enter most of the other commands. If there is a password in the MAP, you will have to type the password in order to unlock the MAP. See the Password command in the *Syntax Commands* section for instructions on setting up a password.

## ENTERING COMMANDS

After each command you type at the terminal, press Enter to execute the command.

Some standard ASCII terminals (or computers operating as terminals) have function keys you can program to do frequently used keystroke sequences in a single keystroke. Refer to your terminal's user manual for instructions on how to program the function keys.

## ERROR MESSAGES

Two error messages may appear on the terminal screen:

MESSAGE	MEANING	ACTION
COMMAND ERROR	Command not understood	Enter the command correctly
SYNTAX ERROR	Entry does not follow the rules of syntax	Enter the command correctly

# PRINTER SYNTAX

## SAMPLE MAP CONFIGURATION FILE

In this example, Table D, we will configure a MAP to poll a single MAT and CPM, both addressed as address 1 and both located at the same remote site. We will establish a connection and poll them continuously. Use a dumb terminal, or a PC emulating a dumb terminal, attached to the Printer Port. Follow each entry with a carriage return.

TABLE D - CONFIGURATION EXAMPLE

COMMAND	DESCRIPTION
1. UNLOCK1	By unlocking the printer port, this command prepares the MAP to accept input commands which will change the system configuration.
2. RESET ALL	This command resets the MAP, reinitializes the MAP configuration and locks the printer port. The MAP erases all data stored in memory including phone numbers, alarm conditions, and option settings.
3. UNLOCK1	Because the RESET ALL command locked the printer port, you must unlock it again in order to change the database.
4. DATE MM-DD-YY	Entering the command DATE mm-dd-yy sets the system date. Use leading zeroes (for example 09-05-96) if necessary.
5. TIME HH:MM:SS	Sets the system time. Use the 24-hour format.
6. TIME ON	Turns the time and date functions on. Without it, the time and date do not change.
7. MAT 1 PH	This command will initiate a series of questions about MAT address number 1, to which you will be required to provide answers.
Txxx-xxxx	The first entry is the phone number of the remote MAT #1. Precede the number with a "T" if you prefer touch-tone dialing, or a "P" if you prefer pulse dialing.
REMOTE SITE NAME	This is any ASCII text string describing the remote site. This site name can be up to 64 characters long, but in some reports, only the first 6 are shown.
Txxx-xxxx	This is the main phone number of the master site. This is the number that the remotes will call when they report alarms.
Txxx-xxxx	This is the back-up phone number used by the remote MATs and CPMs if the main number is unavailable.
8. CPM 1 PH# 1	This command will assign the phone number stored as entry 1, to CPM 1.
9. MAT 1 ON	This will tell the MAP that you wish to add MAT 1 to the active polling list.
10. CPM 1 ON	This will tell the MAP that you wish to add CPM 1 to the active polling list.
11. POLL ON	This command tells the MAP that you are ready to begin polling.
12. ENTRY 1 LOCK	Commands the MAP to immediately poll entry 1, (MAT 1 and CPM 1, in this example), and remain connected to that entry. Use the command ENTRY 1 UNLOCK to disconnect from that entry. Use the command ENTRY 1 POLL to immediately poll that entry and then disconnect.

# PRINTER SYNTAX

Another way of configuring the MAP is by the creation and download of an ASCII text file. Create a file using any ASCII text editor. Each line must end with a carriage return. Use a communication program such as Windows Terminal to perform a text transfer. Set the inter-line delay for 3 milliseconds. If your program does not offer an inter-line delay, set the inter-character delay for 2 milliseconds.

## EDITING

The following table shows how to do some common editing tasks. The term **Ctrl** refers to the Control key on the terminal keyboard.

TASK	KEYSTROKES
<b>Stop Output</b> (stop data flow from processor)	CTRL-D
<b>Backspace</b>	CTRL-H or backspace key
<b>Recall Previous Line</b> (Used to edit command after receiving an error message.)	CTRL-K
<b>Recall Current Line</b> (Used when interrupted by a system status message.)	CTRL-R
<b>Pause Output</b> (Interrupt data flow from processor.)	CTRL-S (Press CTRL-Q to restart)
<b>Re-execute Last Command</b>	CTRL-X

## ABBREVIATIONS AND SUBSTITUTIONS

Several of the syntax commands in the following section can be abbreviated or replaced by other commands. Here is a list of alternate commands that will work in place of the regular commands:

REGULAR COMMAND	ABBREVIATION OR SUBSTITUTION
BELL	BEEP or DING
DISPLAY	DISP or D
POINT	PNT or P
QUERY	? or Q
STATUS	STAT
SWITCHES	DIPS
LINEFEED	LF
SYSTEM	SYS

# PRINTER SYNTAX

## SYNTAX COMMANDS

---

### ACKNOWLEDGE

---

**Purpose:**

Acknowledges all or specific alarms at the MAT(s) and CPM(s).

---

**Format:**

ACK ALL  
ACK CPM [CPM number(s)]  
ACK MAT [MAT number(s)]

---

**Remarks:**

MAT and CPM numbers range from 1 to 128.

---

**Examples:**

---

```
>ACK CPM 1  
>ACK MAT 3-8  
>ACK CPM 2,7,10
```

---

---

### BELL

---

**Purpose:**

Reports if the terminal bell is on or off. Turns bell on or off. When bell is on, it sounds when a change of alarm status occurs.

---

**Format:**

BELL  
BELL ON  
BELL OFF

---

**Remarks:**

The command BELL shows if the bell is on or off. The other commands turn the bell on or off.

# PRINTER SYNTAX

**NOTE:**

The Call Time Delay command does not set the time delay between calls.

---

## CALL TIME DELAY

---

**Purpose:**

Displays the modem timeout length before the connection is established. The length can be from 1 second to 255 seconds (4 minutes and 15 seconds).

---

**Format:**

CALL ! [1-255]

---

## CHANGE

---

**Purpose:**

Lets you re-enter information for a particular phone list entry.

---

**Format:**

CHANGE [phone list entry number]

---

**Example:**

---

```
>CHANGE 128
09:33:10  OCT 25, 1996
ENTER PHONE NUMBER -
```

---

---

## CLEAR ALARMS

---

**Purpose:**

Clears all database information.

---

**Format:**

CLEAR ALARMS  
CLR ALARMS

---

## CLEAR PASSWORDS

---

**Purpose:**

Clears information for both system passwords.

CONTINUED . . .

# PRINTER SYNTAX

---

**Format:**

CLEAR PASSWORDS

---

**CPM POINT ACTIVATE**

---

**Purpose:**

Operates one listed point at the specified CPM(s).

---

**Format:**

CPM # ACT [point number]

---

**Remarks:**

The CPM point activates for the time period set by the option switches or by programming (see the GET and CPM Point Time Period commands.)

---

**Example:**

---

>CPM 1 ACT 5					
>CPM DEVICE	1 POINT	5 OPERATE	OCT 25, 1996	10:18:02	

---

---

**CPM POINT CLEAR**

---

**Purpose:**

Resets one listed point at the specified CPM(s).

---

**Format:**

CPM [CPM number] CLEAR [point number]

---

**Example:**

---

>CPM 1 CLEAR 5					
>CPM DEVICE	1 POINT	5 RELEASE	OCT 25, 1996	10:18:02	

---

# PRINTER SYNTAX

---

## CPM POINT DIRECT OPERATE

---

### Purpose:

Momentarily turns points on or off at CPM(s). Also latches CPM(s) points on and resets latched points.

---

### Format:

CPM [CPM number] DLON [point number(s)]  
CPM [CPM number] DLOF [point number(s)]  
CPM [CPM number] DMON [point number(s)]  
CPM [CPM number] DMOF [point number(s)]

---

### Remarks:

This group of commands overrides the CPM option switch settings (momentary/latching).

List point numbers individually with a comma between them, or as a group with a hyphen between them or use the word ALL.

The DLON command latches CPM points on. The DLOF command resets the latched points.

The DMON command operates CPM points for three seconds. The DMOF command turns latched CPM points off for three seconds, then turn the points back on.

---

### Example:

---

```
>CPM 1 DLON 1,3,5
>CPM DEVICE 1 POINT 1 OPERATE      OCT 25, 1996   10:18:02
  CPM DEVICE 1 POINT 3 OPERATE      OCT 25, 1996   10:18:03
  CPM DEVICE 1 POINT 5 OPERATE      OCT 25, 1996   10:18:04
```

---

---

## CPM POINT RELEASE

---

### Purpose:

Resets specified points at the CPM(s).

---

### Format:

CPM [CPM number] RLS [point number(s)]

---

### Remarks:

List point numbers individually with a comma between them, or as a group with a hyphen between them or use the word ALL.

CONTINUED . . .

# PRINTER SYNTAX

## Example:

---

```
>CPM 1 RLS 3,5
>CPM DEVICE 1 POINT 1 RELEASE OCT 25, 1996 10:20:02
  CPM DEVICE 1 POINT 3 RELEASE OCT 25, 1996 10:20:03
```

---

## CPM POINT SELECT OPERATE

### Purpose:

Momentarily turns CPM points on or off, and also latches CPM points on and resets latched points.

### Format:

CPM [CPM number] SLON [point number(s)]  
CPM [CPM number] SLOF [point number(s)]  
CPM [CPM number] SMON [point number(s)]  
CPM [CPM number] SMOF [point number(s)]  
CPM [CPM number] EXE

### Remarks:

This group of commands overrides the option switch settings (momentary/latching) of the CPM(s). List point numbers individually with a comma between them, or as a group with a hyphen between them or use the word ALL.

The SLON command prepares CPM points for latching. The SLOF command prepares the latched points for resetting.

The SMON command prepares CPM points for operating for three seconds. The SMOF command prepares to turn latched CPM points off for three seconds then turns the points back on.

The EXE command executes the above commands.

### Example:

---

```
>CPM 1 SLON 1,3,5
>CPM 1 EXE
>CPM DEVICE 1 POINT 1 OPERATE OCT 25, 1996 10:18:02
  CPM DEVICE 1 POINT 3 OPERATE OCT 25, 1996 10:18:03
  CPM DEVICE 1 POINT 5 OPERATE OCT 25, 1996 10:18:04
```

---

# PRINTER SYNTAX

---

## CPM POINT SET

---

### Purpose:

Operates points at the CPM(s).

---

### Format:

CPM [CPM number] SET [point number(s)]

---

### Remarks:

List point numbers individually with a comma between them, or as a group with a hyphen between them or use the word ALL.

Points are operated for the time periods set by the option switches or by programming (see the GET and CPM Point Time Period commands).

---

### Example:

---

```
>CPM 1 SET 1,3,5
>CPM DEVICE 1 POINT 1 OPERATE      OCT 25, 1996  10:18:02
  CPM DEVICE 1 POINT 3 OPERATE      OCT 25, 1996  10:18:03
  CPM DEVICE 1 POINT 5 OPERATE      OCT 25, 1996  10:18:04
```

---

---

## CPM POINT TIME PERIOD

---

### Purpose:

Sets the time period for momentary operation of points at the CPM(s).

---

### Format:

CPM [CPM number] LONG [time]  
CPM [CPM number] SHORT [time]  
CPM [CPM number] PER [point number] [time]

---

### Remarks:

Time is in tenths of a second with a range of 0.1 seconds to 25.5 seconds. Specify the time using a number from 1 to 255. Each number represents a tenth of a second.

The CPM LONG command sets the time period for CPM control points that are set for extended (E) operation. The CPM SHORT command sets the time period for control points that are set for short (S) operation.

The CPM PER command sets a unique time period for momentary operation of a specific control point.

CONTINUED . . .

# PRINTER SYNTAX

Operate the control points by using the CPM Point Set command.

If CPM points default to something other than extended (E) operation you must reset the CPM options as shown below:

---

```
>CPM 1 OPT E E E E E E E E E E E E E E E E S S S S
```

---

---

## Examples:

---

```
>CPM 1 LONG 200  
>CPM 1 PER 16 100
```

---

### NOTE:

To be Y2K compliant, the 46800-58 Dial-up Firmware now supports a range of dates from 1998 to 2097

---

## DATE

---

### Purpose:

Displays or sets the date.

---

### Format:

DATE  
DATE mm-dd-yy

---

### Remarks:

The command DATE gives the system date. If you do not set a date, the system reports "no date."

The command DATE mm-dd-yy sets the date. Use leading zeroes (for example, 09-05-96) if necessary.

---

## DELETE

---

### Purpose:

Removes a MAT or CPM (or a range of MATs or CPMs) from the polling list.

---

### Format:

CPM [CPM number(s)] DELETE  
MAT [MAT number(s)] DELETE

---

### Remarks:

MAT and CPM numbers range from 1 to 128.

# PRINTER SYNTAX

## ENTRY

### Purpose:

Displays the current phone book in memory, determines polling conditions for phone numbers and sets location in the phone book so you can change a phone number.

### Format:

```
ENTRY
ENTRY [number(s)] ON
ENTRY [number(s)] OFF
ENTRY [number(s)] CONTINUOUS
ENTRY [number(s)] POLL
ENTRY [number(s)] LOCK
ENTRY [number(s)] UNLOCK
ENTRY [number(s)] INTERVAL
ENTRY [number(s)] TERMINAL
```

### Remarks:

The ENTRY command displays the current phone book entries in memory. The list of displayed phone numbers begins with the phone book entry that will be altered next. ENTRY numbers can be an entry or group of entries from 1 to 128.

The ENTRY [number(s)] command displays the current phone book entries within the specified range.

The ENTRY [number(s)] ON and ENTRY [number(s)] OFF commands tells the MAP to poll (ON) or not poll (OFF) an entry or range of entries.

The ENTRY [number(s)] CONTINUOUS command tells the MAP to continuously poll an entry or range of entries.

The ENTRY [number(s)] POLL command tells the MAP to immediately poll an entry or range of entries.

- ◆ In addition, this command, upon call-out and connection to the remote, downloads configuration information contained in the ENTRY # to the remote modem. It then assigns the modem's ID as the ENTRY #. The command POLL ON must be used prior to using this command.

The ENTRY [number(s)] LOCK command tells the MAP to immediately poll an entry and remain connected to that entry.

The ENTRY [number(s)] UNLOCK tells the MAP to disconnect from an entry or range of entries.

The ENTRY [number(s)] INTERVAL sets the MAP to interval polling mode for an entry or range of entries.

The ENTRY [number(s)] TERMINAL dials the entry number (or the first entry number in the range) and allows configuration of the 49212 Dial-Up Modems.

CONTINUED . . .

# PRINTER SYNTAX

## Example:

```
>ENTRY
15:21:22  MAY 30, 1997  NEXT ENTRY = 3
ENTRY # 1 = T5551111  IN SRVC  NORM  INTERVAL  MPO IS OFF
SITE NAME - FNSOCA
MASTER   - T5554444
BACKUP   - T5559999
```

## GET

### Purpose:

Queries a MAT or CPM (or a range of MATs or CPMs) for alarm levels.

### Format:

```
CPM [CPM number(s)] GET
MAT [MAT number(s)] GET
```

### Remarks:

MAT and CPM numbers range from 1 to 128.

## LINE

### Purpose:

Displays the current phone line selection (1 or 2) and sets current phone line.

### Format:

```
LINE
LINE [number]
```

### Remarks:

The LINE command displays the current phone line (1 or 2).

The LINE [number] command sets the current phone line to line 1 or line 2.

# PRINTER SYNTAX

---

## LINEFEED

---

### Purpose:

Reports if the linefeed is off. Turns the linefeed on or off.

---

### Format:

LF  
LF ON  
LF OFF

---

### Remarks:

The command LF shows if the linefeed is on or off. The other commands turn the linefeed on or off.

---

## Lock

---

### Purpose

Locks the MAPs printer port so it will not accept commands that change system configuration, acknowledge alarms, or set control points.

---

### Format

LOCK

---

## Log

---

### Purpose:

Reports the logging feature as on or off. Turns the logging feature on or off.

---

### Format:

LOG  
LOG ON  
LOG OFF

---

### Remarks:

The LOG command reports the logging feature as on or off.

The LOG ON command turns logging on. Whenever there is a MAT alarm point status change, or a CPM control point status change, the system issues a report. The system also issues a report when there is a device failure.

CONTINUED . . .

# PRINTER SYNTAX

The LOG OFF command turns logging off. Changes in status and device failures are not reported. The most recent changes are stored in memory and displayed when the logging feature is turned on.

---

**Example:**

Example of a change of status report:

---

```
MAT  DEVICE 1 POINT 1 FAIL ALM LVL A NORM  OCT 22, 1996  10:22:00
```

---

---

**MODE**

---

**Purpose:**

Shows if the system is locked or unlocked.

---

**Format:**

MODE

---

**Remarks:**

If a password exists in the system, the system displays 'System Locked.' Otherwise the system displays 'System Unlocked.'

---

**MODEM RESET**

---

**Purpose:**

Initializes the modem.

---

**Format:**

MODEM RESET

---

**Remarks:**

Use this command if the system is not operating properly and you believe the modem may be the problem.

---

**NEXT ENTRY**

---

**Purpose:**

Shows you the next phone list entry to be configured by the PHONE command.

**CONTINUED . . .**

# PRINTER SYNTAX

---

**Format:**

NEXT ENTRY [phone list entry number]

---

**Remarks:**

The phone list entry numbers range from 1 to 128.

---

**ON, OFF, OFFLINE**

---

**Purpose:**

Turns a MAT or CPM, or a range of MATs or CPMs on or off and removes and restores MATs or CPMs from the polling list.

---

**Format:**

CPM [CPM number(s)] ON [baud rate]  
CPM [CPM number(s)] OFF  
CPM [CPM number(s)] OFFLINE  
MAT [MAT number(s)] ON [baud rate]  
MAT [MAT number(s)] OFF  
MAT [MAT number(s)] OFFLINE

---

**Remarks:**

MAT and CPM numbers range from 1 to 128.

The ON command turns a MAT or CPM, or a range of MATs or CPMs on at a specific baud rate. Valid baud rates are 50, 75, 110, 135, 150, 300, 600, 1200, 1800, 2400, 3600, 4800, 7200 and 9600.

The OFF command turns a MAT or CPM (or a range of MATs or CPMs) off.

The OFFLINE command removes a MAT or CPM (or a range of MATs or CPMs) from the polling list. The ON command restores the removed MATs or CPMs to the polling list.

---

**OPT**

---

**Purpose:**

Reports master alarm level options for a MAT or CPM (or a range of MATs or CPMs) and sets MAT or CPM alarm level options.

CONTINUED . . .

# PRINTER SYNTAX

---

**Format:**

CPM [CPM number(s)] OPT [alarm level]  
CPM [CPM number(s)] OPT REMOTE  
MAT [MAT number(s)] OPT [alarm level]  
MAT [MAT number(s)] OPT REMOTE

---

**Remarks:**

MAT and CPM numbers range from 1 to 128.

You can enter alarm levels for categories A, B, C and D. You must enter all 16 alarm levels.

The OPT REMOTE command displays master (MAP) alarm levels for MATs or CPMs.

---

**PASSWORD**

---

**Purpose:**

Sets one or two passwords for system security.

---

**Format:**

PASSWORD1  
PASSWORD2

---

**Remarks:**

Two passwords provide two levels of security. For example, one password can be for a supervisor and the other can be for maintenance personnel.

If an old password exists you must enter the old password before entering the new one. Enter a new password up to seven characters long. The system requires that you re-enter the password for verification.

The MAP sends PASSWORD1 to all remote modems. The remote modems require PASSWORD1 before they accept calls. When the MAP calls the remote modems the MAP automatically gives the correct password.

---

**PHONE NUMBER**

---

**Purpose:**

Sets phone numbers of MAT(s) and CPM(s).

CONTINUED . . .

# PRINTER SYNTAX

---

**Format:**

CPM or MAT # PH

CPM or MAT # PH# [phone list entry number]

---

**Remarks:**

The commands CPM # PH and MAT # PH creates the next ENTRY # in the database and links the remote site phone number to the CPM(s) or MAT(s) address(es) the firmware polling list expects to find at that number.

When you set a phone number for a MAT, and the MAT is in remote mode, the MAT status changes to local mode. MAT or CPM phone numbers can be up to 30 characters long and can include the following special characters:

- ◆ P = force pulse dialing
- ◆ T = force tone dialing
- ◆ , = pause
- ◆ ! = flash
- ◆ / = wait for 1/8 second
- ◆ @ = wait for silence
- ◆ W = wait for second dial tone
- ◆ R = reverse mode (for calling originate-only modem)

After you enter the phone number for the MAT(s) or CPM(s) you must enter the site name. The site name can be up to 64 characters long. With some commands (for example, LIST SYSTEM) there is not enough room on a display monitor line to show all 64 characters. In such cases the display only shows the first 6 characters.

After you enter the site name, you must enter the master and backup phone numbers used by the MAT(s) and CPM(s) to call the MAP. The numbers can be up to 16 characters long. If you enter C as the first character of a master or backup phone number the system copies the master or backup phone number from the previous entry.

The commands CPM or MAT # PH# [entry number] assign the device(s) to an existing phone number. The symbol “#” after MAT or CPM means to enter the address(es) of the device(s); after PH enter the actual symbol “#”. Entry numbers refer to the entry number in the phone book that contains the phone number to be assigned to the device(s).

Phone list entry numbers range from 1 to 128. CPM or MAT numbers range from 1 to 128.

# PRINTER SYNTAX

## POLL

### Purpose:

Displays the current polling configuration and changes polling configuration settings.

### Format:

POLL  
POLL AT [time]  
POLL CONTINUOUS  
POLL INT [time]  
POLL ON  
POLL OFF

### Remarks:

The POLL command displays the current polling configuration.

The POLL AT command sets the next time to poll the system. Set the time by entering the time in hours, minutes and seconds using 24-hour format. For example, enter 14:30:05.

The POLL CONTINUOUS command tells the MAP to poll the list of phone entries continuously.

The POLL INT command schedules the time in which the list of remotes will be polled. The time is entered in hours, minutes, and seconds using the 24-hour format.

### Examples:

- ◆ If 00:15:00 is entered for POLL INT and there is no start time entered for POLL AT, polling is initiated immediately.
- ◆ If POLL AT is set for 10:00pm and POLL INT is set for 00:15:00, polling is initiated at 10:15, 10:30, 10:45, and so forth every 15 minutes. This is independent of the time required to poll through the polling entry list. If a poll is initiated at 10:15 and it takes 10 minutes to poll through the entry list, then there will only be 5 minutes of idle time before the next polling sequence starts.
- ◆ Polling also begins immediately if the polling system time has passed for the day.

If you do not set a polling interval, the time on the screen will be shown by ??:?:??. If you set a polling time but that time has not passed, the screen shows the time polling will begin.

The POLL ON and POLL OFF commands turn polling on and off.

# PRINTER SYNTAX

---

## PUT

---

### Purpose:

Downloads alarm levels from the MAP to a MAT or CPM (or a range of MATs or CPMs).

---

### Format:

CPM [CPM number(s)] PUT  
MAT [MAT number(s)] PUT

---

## QUERY

---

### Purpose:

Shows the MAP system configuration (for example, MAP switch settings).

---

### Format:

?  
Q  
QUERY

---

### Example:

---

```
>Q
Remote Port -- Data Acquisition
DCM is ON
Terminal Port : Printer III
Terminal Port baud      = 9600
Master Port: DCP/S Responder
Master Port Baud       = 1200
DCP/S Map Id          = 1
```

---

---

## REMARK

---

### Purpose:

Lets you enter comments without interpretation by the MAP.

---

### Format:

REM  
REMARK

# PRINTER SYNTAX

---

## RESET

---

### Purpose:

Clears all database information and restarts the unit, resets operating points on all CPMs and resets points on all MATs.

---

### Format:

RESET (or RST)  
RESET (or RST) ALL  
CPM [CPM number] RESET (or RST)  
MAT [MAT number] RESET (or RST)

---

### Remarks:

The RESET command resets the MAP, reinitializes the MAP configuration and locks the printer port. Memory backup retains phone numbers, alarm conditions, option settings, etc.

The RESET ALL command resets the MAP, reinitializes the MAP configuration and locks the printer port. The MAP erases all data stored in memory including phone numbers, alarm conditions, options settings, etc.

The CPM RESET command resets all operated control points at the CPM(s).

The MAT RESET command resets latched alarm points at the MAT(s).

---

### Example:

---

>CPM 1 RST					
>CPM DEVICE	1 POINT	1 RELEASE	OCT 25, 1996	10:18:02	
CPM DEVICE	1 POINT	2 RELEASE	OCT 25, 1996	10:18:03	

---

---

## REVISION

---

### Purpose:

Displays product version and revision information.

---

### Format:

REVLIST  
REVLST  
HISTORY

# PRINTER SYNTAX

---

## SHOW

---

### Purpose:

Displays alarm levels for a CPM or MAT (or a range of CPMs or MATs).

---

### Format:

CPM [CPM number(s)] SHOW  
MAT [MAT number(s)] SHOW

---

### Remarks:

CPM and MAT numbers range from 1 to 128.

---

## STATUS

---

### Purpose:

Produces a report on the status of individual devices or of all devices in the system.

---

### Format:

CPM [CPM number(s)] STATUS  
MAT [MAT number(s)] STATUS

---

### Remarks:

The status report shows whether the device is on or offline, whether it is turned on or off (in or out of service), the baud rate and whether it is responding to polls (normal or fail).

---

### Example:

---

```
>MAT 1 STATUS
MAT  STATUS      10:03:02  OCT 22, 1996
MAT  1 ON LINE IN SRVC BAUD 1200 NORM
```

---

---

## SWITCHES

---

### Purpose:

Lists MAP switch settings.

CONTINUED . . .

# PRINTER SYNTAX

---

**Format:**

SWITCHES  
DIP  
DIPS

---

**Remarks:**

In the example below, D = DOWN and U = UP.

---

**EXAMPLE:**

---

```
>SWITCHES
DIP 1)DDDDDDDD 2)DDDDDUDD 3)DDDDDDDD 4)DDDDDUDD
```

---

---

**SYSTEM**

---

**Purpose:**

Shows the current polling list and alarm information for CPMs and MATs.

---

**Format:**

SYSTEM  
SYS

---

**Example:**

---

```
>SYS
LIST SYSTEM 14:23:24 OCT 27, 1996
MAT 21 . . . AF. . F. . .BF. . . . . 1 FSN0CA T2921111
MAT 22 . . CN. . . . . . . . . . . 1 FSN0CA T2921111
```

---

In the previous example, the display for MATs 21 and 22 show A, B and C-level alarms. The display also lists the entry number, site name and phone number assigned to the MATs. The MATs connect to a 44210 or 49212 Dial-Up Modem and are at the same remote site.

---

**TIME**

---

**Purpose:**

Displays or sets system time.

CONTINUED . . .

# PRINTER SYNTAX

---

**Format:**

TIME  
TIME hh:mm:ss  
TIME ON  
TIME OFF

---

**Remarks:**

The command TIME displays the current time.

Set the time by typing TIME and then the hour-minute-second time in 24-hour format.

TIME ON turns on the time and date functions. TIME OFF turns off the time and date functions and the time and date do not change.

---

**UNLOCK**

---

**Purpose:**

Unlocks the MAP so it accepts commands to change system configuration, acknowledge alarms and operate control points.

---

**Format:**

UNLOCK1  
UNLOCK2

---

**Remarks:**

If there is a password, you must enter it before the system unlocks. The two unlock commands allows for two levels of security. UNLOCK1 requires PASSWORD1. UNLOCK2 requires PASSWORD2.

# GLOSSARY

---

## CPM

Dantel's 46028 or 46029 Control Point Module. Provides 16 control outputs remotely operated from a control terminal via the MAP data port.

---

## CPM Echo

Data port protocol that "echoes" the alarm points from a MAT to a CPM which gives a remote status display.

---

## Data Port

This port interfaces the MAP to the remote alarm status reporting and control devices (serial ports, MATs and CPMs).

---

## DCM

Dantel's CPM/MAT protocol.

---

## DCP

DATAP Communications Protocol.

---

## DCP/F

DATAP Communications Protocol with framing.

---

## Discrete Points

Individual alarm points that use contact closure or voltage level change to indicate a status change. These points report the status to the MAP through a MAT which encodes the status into a digital message.

---

## Display

Sixty-four status points reporting through a serial port using TBOS protocol. Each display is divided into eight subgroups of eight points each.

---

## E-System

AT&T Technologies alarm system. The MAP interfaces to this system through a 46033 E-System Adapter.

---

## E2A Remote

AT&T Technologies alarm remote.

---

## MAP

Dantel's 46020 Multiple Alarm Processor. The MAP is the central intelligence unit of the 460 Alarm and Control System. The MAP provides three data ports for gathering remote alarm information, reporting to a master computer and communicating with a dumb terminal.

# GLOSSARY

---

## Master Port

This port interfaces the MAP to a personal computer programmed to operate as an alarm system master. The master port can also interface the MAP to an external system master either directly, such as to an E2A remote or through a protocol adapter (such as Dantel's 46033 E-System Adapter). The master port can also communicate data to and from another MAP data port using DCP or DCP/F protocol.

---

## MAT

Dantel's 46009 or 46010 Multiple Alarm Transmitter which reports alarm data to the MAP. The 46009 MAT has 32 alarm inputs and the 46010 MAT has 16 alarm inputs.

---

## Printer Port

This port interfaces the MAP to a dumb terminal or a personal computer programmed to operate as a dumb terminal.

---

## Serial Port

Communications port on a radio or other communications device that codes all alarm status and control point information as a serial data word. Usually uses TBOS protocol and RS-422 communications interface.

# WARRANTY

## LIMITED WARRANTY

The Seller warrants that the standard hardware products sold will be free from defects in material and workmanship and perform to the Seller's applicable published specifications for a period of 18 months for hardware, and 3 months for software, from the date of the original invoice. The liability of the Seller hereunder shall be limited to replacing or repairing, at its option, any defective products which are returned F.O.B. to the Seller's plant, (or, at the Seller's option, refunding the purchase price of such products). In no case are products to be returned without first obtaining permission and a customer return authorization number from the Seller. In no event shall the Seller be liable for any consequential or incidental damages.

Equipment or parts which have been subject to abuse, misuse, accident, alteration, neglect, unauthorized repair or installation are not covered by warranty. The Seller shall make the final determination as to the existence and cause of any alleged defect. No warranty is made with respect to custom equipment or products produced to the Buyer's specifications except as specifically stated in writing by the Seller in the contract for such custom equipment.

This warranty is the only warranty made by the Seller with respect to the goods delivered hereunder, and may be modified or amended only by a written instrument signed by a duly authorized officer of the Seller and accepted by the Buyer.

Warranty and remedies on products not manufactured by the Seller are in accordance with warranty of the respective manufacturer. THE SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED; AND ALL IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE AFORESAID OBLIGATIONS IS HEREBY DISCLAIMED BY THE SELLER.

## IN CASE OF DIFFICULTY

If you experience difficulty with this equipment, check the following, as appropriate:

1. Switch settings
2. Signal levels
3. Software configuration
4. Connections between Dantel's equipment and your equipment.

If there is still a problem, substitute equipment that is known to be good. For additional assistance, call Dantel's Technical Field Service Department weekdays, 6 A.M. to 5 P.M. pacific time:

**1-800-4DANTEL (1-800-432-6835).**

If a thorough checkout shows a piece of equipment has malfunctioned, you may return it to the factory. For repairs and emergency replacements, obtain a Return Material Authorization (RMA) number from the Customer Service Representative at **1-800-4DANTEL (1-800-432-6835)**.

To ensure expedient processing of your order, provide a purchase order number and shipping and billing information when requesting an RMA number. Also, when the units are returned to Dantel, include a description of the failure symptoms for each unit returned. Send defective equipment to:

**Dantel, Inc. • 2991 North Argyle Avenue • Fresno, California 93727-1388**

